

WHAT IS CLAIMED IS:

1. A method for preparing a laminate, comprising the steps of
providing a first laminae and a second laminae, at least said first laminae being
liquid pregnable and being impregnated with a liquid adhesive composition, said adhesive
composition comprising hemicellulose and water, said first laminae being in contact with
said second laminae along a bonding interface; and
at least substantially dewatering said adhesive to thereby form an adhesive bond
between said first and second laminae at said bonding interface.
2. A method according to claim 1, said first laminae comprising a nonwoven
mat of fibers.
3. A method according to claim 2, said fibers comprising glass fibers.
4. A method according to claim 1, said first laminae comprising a woven fabric.
5. A method according to claim 1, said adhesive composition comprising one or
more bonding agents and water, said hemicellulose being present in said adhesive
composition in an amount of at least 10% by dry weight of said one or more bonding
agents.
6. A method according to claim 5, said hemicellulose being present in an
amount of at least 50% by dry weight of said one or more bonding agents.

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7. A method according to claim 6, wherein said adhesive composition comprises a liquid fraction derived from an alkaline cooked hemicellulose-containing agricultural residue.
8. A method according to claim 7, wherein said adhesive composition consists essentially of hemicellulose and water.
9. A method according to claim 1, said dewatering step including applying heat.
10. A method according to claim 1, including the steps of impregnating said first laminae with said adhesive, and subsequently placing said first laminae into contact with said second laminae.
11. A method according to claim 10 further, including the step of impregnating said second laminae with said adhesive.
12. A method according to claim 11, wherein said second laminae is impregnated prior to placing said second laminae into contact with said first laminae.
13. A method according to claim 1, including the step of providing said first laminae in prepreg form.
14. A method according to claim 13, including the step of providing said second laminae in prepreg form.

15. A method according to claim 1, including the step of placing said first and second laminae into contact along said bonding interface prior to impregnating said first laminae with said adhesive composition.

16. A method according to claim 15, said second laminae being liquid pregnable, said method including the step of impregnating said first and second laminae with said adhesive composition after placing said first and second laminae into contact along said bonding interface.

17. A method for preparing a prepreg, comprising the steps of providing a liquid pregnable substrate; and impregnating said substrate with an adhesive composition, said adhesive composition comprising hemicellulose and water.

18. A method according to claim 17, said first laminae comprising a nonwoven mat of fibers.

19. A method according to claim 18, said fibers comprising glass fibers.

20. A method according to claim 17, said first laminae comprising a woven fabric.

21. A method according to claim 17, said adhesive composition comprising one or more bonding agents and water, said hemicellulose being present in said adhesive

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composition in an amount of at least 10% by dry weight of said one or more bonding agents.

22. A method according to claim 21, ~~said~~ hemicellulose being present in an amount of at least 50% by dry weight of said one or more bonding agents.

23. A method according to claim 21, ~~wherein~~ said adhesive composition comprises a liquid fraction derived from an alkaline cooked hemicellulose-containing agricultural residue.

24. A method according to claim 23, ~~wherein~~ said adhesive composition consists essentially of hemicellulose and water.

25. A method for preparing an adhesively bonded composite structure, comprising the steps of

providing a first substrate;

coating a bonding surface of said first substrate with an adhesive composition, said adhesive composition comprising one or more bonding agents and ^{112 d 2 ?} water, at least 50% by weight of said one or more bonding agents being hemicellulose;

contacting said first substrate with a second substrate at said bonding surface to thereby form a composite structure; and

at least substantially dewatering said adhesive to form an adhesively bonded composite structure.

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26. A method according to claim 25, wherein said adhesive composition comprises a liquid fraction derived from an alkaline cooked hemicellulose-containing agricultural residue.

27. A method according to claim 26, said adhesive composition consisting essentially of hemicellulose and water.

28. A method according to claim 26, wherein said first substrate comprises a nonwoven mat of fibers.

29. A method according to claim 28, wherein said fibers comprise glass fibers.

30. A laminate produced by a process comprising the steps of:
providing a first laminae and a second laminae, at least said first laminae being liquid pregnable and being impregnated with a liquid adhesive composition, said adhesive composition comprising hemicellulose and water, said first laminae being in contact with said second laminae along a bonding interface thereby forming a composite structure; and
at least substantially dewatering said adhesive to thereby form an adhesive bond between said first and second laminae at said bonding interface.

31. A laminate according to claim 30, said first laminae comprising a nonwoven mat of fibers.

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33. A method according to claim 32, said hemicellulose being present in an amount of at least 50% by dry weight of said one or more bonding agents.

35. A shipping vessel according to claim 30, said first laminae comprising a nonwoven mat of fibers.

36. A composite structure proposed by a process comprising the steps of:

providing a substrate, said substrate being liquid pregnable and being impregnated with a liquid adhesive composition, said adhesive composition comprising hemicellulose and water; and

at least substantially dewatering said adhesive composition to thereby form a composite structure.

37. A composite structure according to claim 36, said adhesive composition comprising one or more bonding agents, said hemicellulose being present in said adhesive composition in an amount of at least 50% by dry weight of said bonding agents.

39. A composite structure according to claim 36, said substrate comprising a nonwoven mat of fibers.

40. A shipping vessel comprising:
a container having a wall and an interior volume defined by said wall; and
a partition dividing said interior volume into subvolumes, said partition comprising a composite structure according to claim 36. /